

BILL OF QUANTITIES

ROAD: KUTAI SI BYPASS-SAMTREDIA

LOT 1. SECTION KM0+000-KM6+000

Item No	Description	Unit	Quantity
1	2	3	4
BILL No. 1. PREPARATORY WORKS			
1	Basic survey and detailed setting out of road and right-of-way		
1.1	Basic survey and detailed setting out of road and right-of-way on main road	km	6.00
1.2	Basic survey and detailed setting out of road and right-of-way on intersections	km	0.186
2	Cutting of trees and uprooting	ha	0.36
3	Cutting of shrubs and uprooting	ha	0.26
4	Removal of existing concrete pavement	m ²	1,940.00
5	Dismantling of existing guardrails	l.m	4,141.00
6	Disposal existing guardrails to the production base as scrap metal	t	103.06
7	Dismantling of existing road signs and structures and disposal to the production base as scrap metal	t	36.157
8	Cutting of anchors in cast in situ concrete foundations of three-post structure and full-frame structure up to design elevation, loading manually and disposal to the production base as scrap metal	t	0.480
9	Dismantling of cast in situ concrete foundation of existing road signs	m ³	28.20
TOTAL FOR BILL No. 1.			
BILL No. 2. EARTHWORKS			
	<i>Main road</i>		
1	Removal of top soil, loading and transportation for re-use	m ³	4,670.00
2	Excavation of filled soil by excavator, loading and transportation to dumpsite	m ³	9,020.00
3	Excavation of soft material to any depth in cut, load and transport to dumpsite	m ³	40,510.00
4	Construction of benches on fill slopes	m ³	7,600.00
5	Provide, place and compact fill to embankment with gravel, (borrow to fill).	m ³	135,570.00
6	Reshaping of road bed and compaction	m ²	97,300.00
7	Reshaping of slopes	m ²	43,300.00
8	Distribution of top soil on fill slope thickness 15 cm	m ³	6,495.00
	<i>Ramps and Intersections</i>		
9	Excavation of soft material to any depth in cut, load and transport to dumpsite	m ³	1,580.00
10	Reshaping of road bed	m ²	1,640.00
	<i>Dividing strip</i>		
11	Provide, place and compact fill to dividing strip with sand-gravel mix, (borrow to fill).	m ³	7,709.00
12	Provide and place fill to dividing strip with clay, (borrow to fill).	m ³	11,075.00
13	Distribution of top soil on dividing strip thickness 15 cm	m ³	2,633.00
TOTAL FOR BILL No. 2.			
BILL No. 3. CULVERTS AND DRENAGE			

1	2	3	4
	I. BOX CULVERTS SIZE 1.5X2.0		
	<i>Preparatory works</i>		
1	Removal of existing socle in the outlet manually by jack hammers, loading and disposal to dumpsite	m ³	1.50
2	“Ramp-2” (PK 11+67) removal of wings in the inlet manually by jack hammers, loading and transportation to dumpsite	m ³	2.10
	<i>Earthworks</i>		
3	Excavations in soft soil for construction of new culverts, including loosening and breaking up material during excavation and disposal		
3.1	By excavator	m ³	1,250.00
3.2	Manually	m ³	39.00
4	Construction of gravel bed under the culvert, key and inlet and outlet structures	m ³	34.40
5	Filling of rubble stone around the culvert, wedging and compaction	m ³	930.00
6	Construction of riprap of rocky soil under the culvert body and inlet/outlet, compaction mechanically	m ³	900.00
7	Excavation of water course in outlet of box culverts	m ³	200.00
	<i>New box culverts</i>		
8	Construction of reinforced concrete box culvert, size 1.5 x 2.0 m B30F200W6, including all ancillary works and materials	l.m	37.20
9	Construction of concrete bed under the box culvert B22.5F200W6	m ³	35.10
	<i>Inlet/ Outlet structures</i>		
10	Construct reinforced concrete inlet/outlet structure for box culvert 1.5X2.0m B30F200W6, including all ancillary works and materials.	m ³	11.00
11	Construction of concrete bed under the inlet/outlet structures B22.5F200W6	m ³	5.80
12	“Ramp-2” (PK 11+67) construction of reinforced concrete wings in the inlet, including all ancillary works and materials.	m ³	2.50
13	Waterproofing for inlet/outlet structures	m ²	30.00
14	Concrete of key and socle B30F200W6	m ³	4.20
15	Stone rip-rap	m ³	10.00
	SUM I.		
	II. BOX CULVERTS SIZE 4.0X2.5		
	<i>Preparatory works</i>		
1	Installation of steel re-usable pipe d=1.22 m, L=12 m by crane, for removal of water, follow-up removal and transportation to the production base	l.m	24.00
2	Removal of existing socle in the outlet manually by jack hammers, loading and disposal to dumpsite	m ³	1.50
	<i>Earthworks</i>		
3	Excavations in soft soil for construction of new culverts, including loosening and breaking up material during excavation and disposal		
3.1	By excavator	m ³	1,080.00
3.2	Manually	m ³	54.00
4	Pumping of water with two pumps, capacity 60 m3/hr	Equip. shift	40.00
5	Construction of gravel bed under the culvert, key and inlet and outlet structures	m ³	96.00
6	Filling of rubble stone around the culvert, wedging and compaction	m ³	3,020.00
7	Construction of riprap of rocky soil under the culvert body and inlet/outlet, compaction mechanically	m ³	2,100.00
8	Excavation of water course in outlet of box culverts	m ³	310.00

1	2	3	4
	<i>New box culverts</i>		
9	Construction of reinforced concrete box culvert, size 4.0X2.5m B30F200W6, including all ancillary works and materials.	l.m	52.00
10	Construction of concrete bed under the box culvert B22.5F200W6	m ³	108.10
	<i>Inlet/ Outlet structures</i>		
11	Construct reinforced concrete inlet/outlet structure for box culvert 4.0x2.5m B30F200W6 as shown on the drawings including all ancillary works and materials.	m ³	92.00
12	Construction of concrete bed under the inlet/outlet structures B22.5F200W6	m ³	16.00
13	Waterproofing for inlet/outlet structures	m ²	60.00
14	Concrete of key and socle B30F200W6	m ³	29.90
15	Stone rip-rap	m ³	135.00
	SUM II.		
	III. BOX CULVERTS SIZE 4.0X4.0		
	<i>Preparatory works</i>		
1	Removal of existing socle in the outlet manually by jack hammers, loading and disposal to dumpsite	m ³	0.90
	<i>Earthworks</i>		
2	Excavations in soft soil for construction of new culverts, including loosening and breaking up material during excavation and disposal		
2.1	By excavator	m ³	380.00
2.2	Manually	m ³	19.00
3	Construction of gravel bed under the culvert, key and inlet and outlet structures	m ³	24.10
4	Filling of rubble stone around the culvert, wedging and compaction	m ³	1,800.00
	<i>New box culverts</i>		
5	Construction of reinforced concrete box culvert, size 4.0X4.0m B30F200W6, including all ancillary works and materials.	l.m	9.00
6	Construction of concrete bed under the box culvert B22.5F200W6	m ³	18.80
	<i>Inlet/ Outlet structures</i>		
7	Construct reinforced concrete inlet/outlet structure for box culvert 4.0x4.0m B30F200W6 as shown on the drawings including all ancillary works and materials.	m ³	60.00
8	Construction of concrete bed under the inlet/outlet structures B22.5F200W6	m ³	18.40
9	Waterproofing for inlet/outlet structures	m ²	37.00
10	Concrete of key and socle B30F200W6	m ³	12.90
11	Stone rip-rap	m ³	63.00
	SUM III.		
	IV. BOX CULVERTS SIZE 6.0X4.5		
	<i>Preparatory works</i>		
1	Installation of steel re-usable pipe d=1.22 m, L=12 m by crane, for removal of water, follow-up removal and transportation to the production base	l.m	36.00
2	Removal of existing socle in the outlet manually by jack hammers, loading and disposal to dumpsite	m ³	1.20
	<i>Earthworks</i>		
3	Excavations in soft soil for construction of new culverts, including loosening and breaking up material during excavation and disposal		
3.1	By excavator	m ³	620.00
3.2	Manually	m ³	46.00

1	2	3	4
4	Pumping of water with two pumps, capacity 60 m3/hr	Equip. shift	32.00
5	Construction of gravel bed under the culvert, key and inlet and outlet structures	m ³	61.00
6	Filling of rubble stone around the culvert, wedging and compaction	m ³	4,300.00
	<i>New box culverts</i>		
7	Construction of reinforced concrete box culvert, size 6.0X4.5m B30F200W6, including all ancillary works and materials.	l.m	18.00
8	Construction of concrete bed under the box culvert B22.5F200W6	m ³	49.60
	<i>Inlet/ Outlet structures</i>		
9	Construct reinforced concrete inlet/outlet structure for box culvert 6.0x4.5m B30F200W6 as shown on the drawings including all ancillary works and materials.	m ³	143.60
10	Construction of concrete bed under the inlet/outlet structures B22.5F200W6	m ³	46.60
11	Waterproofing for inlet/outlet structures	m ²	80.00
12	Concrete of key and socle B30F200W6	m ³	34.80
13	Stone rip-rap	m ³	150.00
	SUM IV.		
	V. DRENAGE		
	<i>1. Soil ditches on main road</i>		
1	Construction of ditches in soft soil, ncluding all ancillary works, loading and transportation to dumpsite	m ³	1,600.00
	<i>2. Removal of Water from Carriageway</i>		
	<i>Preparatory works</i>		
1	Saving of cement concrete pavement, thickness 28 sm, loading and disposal to dumpsite	m ³	16.70
2	Excavations in soft soil manually, loading and disposal to dumpsite	m ³	141.00
	<i>Structure of removal of water</i>		
3	Construction of water intake well		
3.1	Gravel bed, thickness 10 cm	m ³	8.50
3.2	Reinforced concrete of intake well B30 F200W6	m ³	58.76
3.3	Cast in situ concrete, B22.5 F200W6	m ³	1.10
3.4	Steel grating and manhole	Set	104.00
4	Plastic corrugated pipe d-500 mm	l.m	930.50
5	Telescopic chute, water-dissipator at the foot of fill and water dissipator in the ditch		
5.1	Crushed aggregates bed, thickness 10 cm	m ³	17.00
5.2	Cast in situ concrete, thickness 10 cm B22.5 F200W6	m ³	12.16
5.3	Reinforced concrete blocks Б-5, Б-7, Б-8 and Б-9 B22.5 F200W6	m ³	42.82
	<i>3. Treatment facilities</i>		
1	Removal of existing treatment facilities		
1.1	Excavation of soil manually, leveling in situ	m ³	1.00
1.2	Removal of reinforced concrete by jack hammers	m ³	2.00
1.3	Dismantling of steel pipes, follow-up installation on treatment facilitates	t	0.128
2	Excavation of soil with excavator	m ³	210.00
3	Construction of crushed aggregates bed h-10 cm	m ³	12.00
4	Construction of concrete leveling layer B20F200W6, h-10 cm	m ³	12.00
5	Construction of cast in situ reinforced concrete treatment reservoir, B30F200W6	m ³	84.00

1	2	3	4
6	Bituminous insulation	m ²	516.00
7	Backfilling of soil in pit with excavator	m ³	60.00
8	Loading of extra soil with excavators and transportation to the dumpsite	m ³	150.00
	SUM V.		

TOTAL FOR BILL No. 3.

BILL No. 4. PILE-SUPPORTED REINFORCED CONCRETE RETAINING WALL AT PK36+95.78

	<i>I. PREPARATORY WORKS</i>		
1	Construction of technological site for the construction of piles, excavation of soil by bulldozer, leveling in situ	m ³	2,690.00
2	Construction of benches mechanically on the existing slope within the limits of section N6	m ³	140.00
3	Construction of rip-rap d>0.5 m within the limits of section N6 up to the level of top of design pile cap, wedging	m ³	590.00
4	Gravelling of technological site by the delivered gravel, leveling by bulldozer	m ²	5,380.00
5	Partial removal of the existing wall by excavator-mounted jack hammers within the limits of sections N3, N4 and N5, loading of construction waste and disposal to dumpsite	m ³	370.00
	<i>II. CONSTRUCTION OF PILE-SUPPORTED RETAINING WAL</i>		
1	Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories)	l.m	18,480.00
2	Loading of taken out soil by excavator and disposal to dumpsite	m ³	21,950.00
3	Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite	m ³	593.00
4	Pile integrity test	u	525.00
5	Construction of reinforced concrete raft foundation:		
5.1	Excavation of soil by excavator, loading and disposal to dumpsite	m ³	28,460.00
5.2	Excavation of soil manually, loading and disposal to dumpsite	m ³	1,427.00
5.3	Excavation and filling by the previously constructed riprap, crushing by excavator-mounted jack hammers	m ³	390.00
5.4	Construction of crushed aggregates base	m ³	1,084.00
5.5	Concrete leveling layer B30F200W6	m ³	497.00
5.6	Reinforced concrete of raft foundation B30 F200 W6	m ³	6,939.00
5.7	Construction of movement joints of bitumen soaked wooden planks between the sections	m ²	235.00
5.8	Bituminous insulation	m ²	5,804.00
5.9	Filling of space behind the pile cap with previously excavated crushed rip-rap, compaction by layers mechanically	m ³	390.00
5.10	Filling of space behind the pile cap with rubble stone with fraction 0-120 mm, mechanical compaction by layers	m ³	2,027.00
6	Construction of reinforced concrete body of pile cap :		
6.1	Reinforced concrete B30 F200 W6	m ³	1,159.00
6.2	Bituminous insulation	m ²	1,288.00
7	Construction of movement joints of bitumen soaked wooden planks between the sections	m ²	40.00
8	Construction of drainage behind the body of pile cap		
8.1	Construction of plastic drainage pipes d=15 cm	l.m	386.00
8.2	Construction of rip-rap on the shoulder of reinforced concrete pile cap	m ³	1,155.00
8.3	Filling of the rubble stone stone with fraction 0-120 mm, behind the body, mechanical compaction by layers	m ³	7,400.00
9	In situ concreting of cast in situ concrete barrier, B30 F200 W6	m ³	161.00

1	2	3	4
10	Manufacturing and installation of embedded details for fixing steel elements of the barrier	kg	1,863.00
11	Manufacturing and painting of steel elements of barrier, transportation and installation by crane	kg	18,692.00
12	Construction of rip-rap d>0.5 m within the limits of section of pile-supported wall, wedging	m ³	3,970.00
13	Construction of rip-rap drainage in the beginning of wall		
13.1	Excavation of soil by excavator, loading and disposal to dumpsite	m ³	1,230.00
13.2	Construction of rip-rap d>0.5 m, wedging	m ³	410.00

TOTAL FOR BILL No. 4.

BILL No. 5. BRIDGES

BILL No. 5. B-1. BRIDGE OVER THE RIVER NAKHSHIRGELE

	<i>I Preparatory works</i>		
1	Excavation of riverbed by excavator, loading of excavated soil, disposal to dumpsite	m ³	3320.00
2	Construction of the site, displacing of the delivered soil by bulldozer, leveling	m ³	200.00
3	Manual dismantling of existing gabion mattresses in the downstream (on bridge cone), loading and disposal to dumpsite	m ³	96.00
4	Construction of technological sites from coarse rocky soil for the construction of abutments, compaction in 0.5m layers	m ³	1480.00
5	Construction of technological site for pier N2, excavation of soil by bulldozer, leveling in situ	m ³	70.00
6	Construction of technological site from the delivered gravel for the construction of pier N3, compaction in layers, follow-up removal and disposal to dumpsite	m ³	1250.00
7	Installation of re-usable 4 steel pipe d=1.22 m, L=12.0 m in the riverbed by crane to divert water, follow-up dismantling and disposal to the production base	l.m	48.00
8	Gravelling of technological sites by the delivered gravel, leveling by bulldozer	m ²	448.00
	<i>II. Abutments N1 and N4</i>		
1	Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories)	l.m	363.00
2	Loading of taken out soil by excavator and disposal to dumpsite	m ³	423.00
3	Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite	m ³	16.00
4	Pile integrity test	unit	14
5	Construction of reinforced concrete cross-beam, back wall, wings, bedplates and stops against seismicity		
5.1	Excavation of coarse grained soil by excavator, piling in situ, leveling by layers, compaction	m ³	170.00
5.2	Excavation of soil manually	m ³	19.00
5.3	Construction of crushed aggregates bed	m ³	29.40
5.4	Concrete leveling layer B30 F200 W6	m ³	12.80
5.5	Reinforced concrete B30F200W6	m ³	250.00
5.6	Bituminous insulation	m ²	233.00
6	Construction of embankment from coarse rocky soil behind the cones and abutments, compaction in 0.5 m layers	m ³	910.00
7	Construction of cast in situ parapets on wings, concrete B30F200W6	m ³	1.60
	<i>III Piers N2 ÷ N3</i>		
8	Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories)	l.m	414.00
9	Loading of taken out soil by excavator and disposal to dumpsite	m ³	588.00
10	Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite	m ³	18.00

1	2	3	4
11	Pile integrity test	unit	16
12	Construction of reinforced concrete raft foundation:		
12.1	Excavation of soil with excavator, pilling in situ	m ³	562.00
12.2	Excavation of soil manually, strengthening of pit walls	m ³	62.00
12.3	Area of strengthening	m ²	298.00
12.4	Pumping of water with two pumps, capacity 60 m3/hr	Equip. shift	15.00
12.5	Construction of crushed aggregates bed	m ³	24.40
12.6	Concrete leveling layer B30 F200 W6	m ³	10.60
12.7	Reinforced concrete of raft foundation B30F200W6	m ³	161.40
12.8	Bituminous insulation	m ²	147.00
12.9	Backfilling of soil into the pit	m ³	428.00
12.10	Loading of extra soil with excavator and transportation to dumpsite	m ³	196.00
13	Construction of reinforced concrete pier column in form work, B30F200W6	m ³	120.40
14	Bituminous insulation	m ²	182.00
15	Construction of reinforced concrete cast in situ cross-beam, supporting bedding and anti-seismic stops, B30F200W6	m ³	76.00
	<i>IV Superstructure</i>		
16	Pre-fabrication of pre-stressed reinforced concrete beams L=33 Ø and transportation to the site, unloading, B40F200W6	m ³	542.40
17	Construction of anti-seismic rubber bearing parts on supporting beddings 30x40x9 cm including uniting steel slab	unit	48
18	Rubber gasket between beams and stops against seismicity	kg	528.00
19	Installation of water removing galvanized steel pipes prior to installation of superstructure beams	kg	2416.00
20	Delivery of superstructure beams in trucks and installation by gantry crane type mounting device	unit	24
21	Concreting of longitudinal seams of beams and cast in situ areas of end beams, B40 F200 W6	m ³	70.20
22	Connection of the superstructure in one continuous temperature system and construction of back slabs B40F200W6	m ³	21.60
23	Construction of gasket from flexible material for uniting the beams into continuous temperature system	m ²	20.00
	<i>V Bridge deck</i>		
24	Construction of cast in situ reinforced concrete slabs on superstructure installed beams h=10.0 cm B40F200W18 (Initial W6)	m ³	139.00
25	In situ concreting of cast in situ reinforced concrete barrier B30F200W6	m ³	39.00
26	Pre-fabrication and installation of embedded details for fixing steel elements of barrier	kg	594.00
27	Pre-fabrication and painting of steel elements of barriers, transportation and installation	kg	6157.80
28	Installation of cast iron pipes for water removal	unit	18.00
29	Application of bitumen on the surface of cast in situ slab	t	1.14
30	Asphalt concrete of carriageway h=7 cm	m ²	1141.00
31	Cat in situ concrete of sidewalks B40F200W6	m ³	16.80
32	Installation of embedded details for the securing of railing	kg	317.00
33	Application of bitumen on sidewalk surface	t	0.10
34	Asphalt concrete of sidewalk h=3 cm	m ²	99.00
35	Pre-fabrication of steel railing, painting, transportation and installation	kg	6237.00
36	Painting of reinforced concrete barrier	m ²	198.00
	<i>VI Construction of movement joints</i>		

1	2	3	4
37	Movement joints (with rubber compensator)	L.m	28.00
	<i>VII Conjunction of bridge with the road bed</i>		
38	Construction of crushed aggregates bedding under transition slabs	m ³	140.00
39	Pre-fabrication of transition slabs, transportation to the site, installation, B30F200W6	m ³	35.80
40	Monolithing of transition slabs B30F200W6	m ³	4.60
41	Protective painting on transition slabs, included leveling layer and protecting layer	m ²	138.00
	<i>VIII Construction of cones surfaces</i>		
42	Construction of gabion mattresses on cones	m ³	185.40
	<i>IX Construction of reinforced concrete pavement</i>		
43	Construction of base from crushed aggregates h=25 ÷ 45 cm	m ³	90.00
44	Reinforced concrete of pavement B35 F200 W6 h=28 cm	m ²	115.00

TOTAL FOR B-1.

BILL No. 5. B-2. BRIDGE OVER THE RIVER CHISHURA

	<i>I Preparatory works</i>		
1	Construction of the site, displacing of the delivered gravel soil by bulldozer, leveling	m ³	500.00
2	Manual dismantling of existing gabion mattresses in the downstream (on bridge cone), loading and disposal to dumpsite	m ³	169.00
3	Construction of technological sites from coarse rocky soil for the construction of abutments, compaction in 0.5 m layers	m ³	1560.00
4	Construction of technological sites for the construction of piers, excavation of soil by bulldozer, leveling in situ	m ³	1370.00
5	Gravelling of technological sites at piers by the delivered gravel, leveling by bulldozer	m ²	1460.00
	<i>II. Abutments N1 and N15</i>		
1	Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories)	l.m	702.00
2	Loading of taken out soil by excavator and disposal to dumpsite	m ³	813.00
3	Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite	m ³	25.00
4	Pile integrity test	unit	22
5	Construction of reinforced concrete cross-beam, back wall, wings, bedplates and stops against seismicity		
5.1	Excavation of coarse grained soil by excavator, piling in situ, leveling by layers, compaction	m ³	181.00
5.2	Excavation of soil manually	m ³	20.00
5.3	Construction of crushed aggregates bed	m ³	38.00
5.4	Concrete leveling layer B30 F200 W6	m ³	16.80
5.5	Reinforced concrete B30F200W6	m ³	340.00
5.6	Bituminous insulation	m ²	307.00
6	Construction of embankment from coarse rocky soil behind the cones and abutments, compaction in 0.5 m layers	m ³	2910.00
7	Construction of cast in situ parapets on wings, concrete B30F200W6	m ³	1.60
	<i>III Piers N2 ÷ N14</i>		
8	Construction of d-1.2 m reinforced concrete bored piles with the casing pipes, concrete B30F200W6(consider excess of concrete in accordance with soil categories)	l.m	2370.00
9	Loading of taken out soil by excavator and disposal to dumpsite	m ³	3078.00
10	Removal of damaged concrete on piles heads by jack hammers, loading with excavator and transportation to dumpsite	m ³	118.00

1	2	3	4
11	Pile integrity test	unit	104
12	Construction of reinforced concrete raft foundation:		
12.1	Excavation of soil with excavator, pilling in situ	m ³	4289.00
12.2	Excavation of soil manually, strengthening of pit walls	m ³	476.60
12.3	Area of strengthening	m ²	2273.00
12.4	Pumping of water with two pumps, capacity 60 m3/hr	Equip. shift	67.00
12.5	Construction of crushed aggregates bed	m ³	159.00
12.6	Concrete leveling layer B30 F200 W6	m ³	69.00
12.7	Reinforced concrete of raft foundation B30F200W6	m ³	1049.00
12.8	Bituminous insulation	m ²	955.00
12.9	Backfilling of soil into the pit	m ³	3489.00
12.10	Loading of extra soil with excavator and transportation to dumpsite	m ³	1277.00
13	Construction of reinforced concrete pier column in form work, B30F200W6	m ³	969.00
14	Bituminous insulation	m ²	473.00
15	Construction of reinforced concrete cast in situ cross-beam, supporting bedding and anti-seismic stops, B30F200W6	m ³	494.00
	<i>IV Superstructure</i>		
16	Pre-fabrication of pre-stressed reinforced concrete beams L=33 Ø and transportation to the site, unloading, B40F200W6	m ³	2531.20
17	Construction of anti-seismic rubber bearing parts on supporting beddings 30x40x9 cm including uniting steel slab	unit	224.00
18	Rubber gasket between beams and stops against seismicity	kg	2464.00
19	Installation of water removing galvanized steel pipes prior to installation of superstructure beams	kg	11273.00
20	Delivery of superstructure beams in trucks and installation by gantry crane type mounting device	unit	112.00
21	Concreting of longitudinal seams of beams and cast in situ areas of end beams, B40 F200 W6	m ³	340.20
22	Connection of the superstructure in one continuous temperature system and construction of back slabs B40F200W6	m ³	100.80
23	Construction of gasket from flexible material for uniting the beams into continuous temperature system	m ²	69.00
	<i>V Bridge deck</i>		
24	Construction of cast in situ reinforced concrete slabs on superstructure installed beams h=10.0 cm B40F200W18 (Initial W6)	m ³	648.00
25	In situ concreting of cast in situ reinforced concrete barrier B30F200W6	m ³	182.00
26	Pre-fabrication and installation of embedded details for fixing steel elements of barrier	kg	2772.00
27	Pre-fabrication and painting of steel elements of barriers, transportation and installation	kg	28736.00
28	Installation of cast iron pipes for water removal	unit	84.00
29	Application of bitumen on the surface of cast in situ slab	t	5.32
30	Asphalt concrete of carriageway h=7 cm	m ²	5323.00
31	Cat in situ concrete of sidewalks B40F200W6	m ³	69.30
32	Installation of embedded details for the securing of railing	kg	1478.00
33	Application of bitumen on sidewalk surface	t	0.46
34	Asphalt concrete of sidewalk h=3 cm	m ²	462.00
35	Pre-fabrication of steel railing, painting, transportation and installation	kg	29106.00
36	Painting of reinforced concrete barrier	m ²	924.00
	<i>VI Construction of movement joints</i>		

1	2	3	4
37	Movement joints (with rubber compensator)	L.m	112.00
	<i>VII Conjunction of bridge with the road bed</i>		
38	Construction of crushed aggregates bedding under transition slabs	m ³	140.00
39	Pre-fabrication of transition slabs, transportation to the site, installation, B30F200W6	m ³	35.80
40	Monolithing of transition slabs B30F200W6	m ³	4.60
41	Protective painting on transition slabs, included leveling layer and protecting layer	m ²	138.00
	<i>VIII Construction of cones surfaces</i>		
42	Construction of gabion mattresses on cones	m ³	361.80
	<i>IX Construction of reinforced concrete pavement</i>		
43	Construction of base from crushed aggregates h=25 ÷ 45 cm	m ³	90.00
44	Reinforced concrete of pavement B35 F200 W6 h=28 cm	m ²	115.00

TOTAL FOR B-2.

TOTAL FOR BILL No. 5.

BILL No. 6. ROAD PAVEMENT

	<i>Concrete pavement -Main road</i>		
1	Construction of sub-base with sand and gravel mix, thickness 30 cm	m ³	32,971.00
2	Construction of lower layer of base course with crushed aggregates 0-40 mm, thickness 25 cm	m ²	68,410.00
3	Provide and construct concrete pavement, 28 sm thick, in two layers, including formwork, dowels, anchors, joints, joint filler and all incidental works, finishing to lines and levels as per drawing and per specification	m ²	62,916.00
4	Construction of reinforcement fabric in cement concrete pavement within the limits of engineering structures	t	263.60
5	Construction of shoulders with sand and gravel mix	m ³	3,464.00
	<i>Concrete pavement - Ramps and Intersections</i>		
6	Construction of sub-base with sand and gravel mix, thickness 30 cm	m ³	715.00
7	Construction of lower layer of base course with crushed aggregates 0-40 mm, thickness 18 cm	m ²	1,261.00
8	Provide and construct concrete pavement, 24 sm thick, including formwork, dowels, anchors, joints, joint filler and all incidental works, finishing to lines and levels as per drawing and per specification	m ²	1,030.00
9	Construction of shoulders with sand and gravel mix	m ³	272.00

TOTAL FOR BILL No. 6.

BILL No. 7. ROAD FURNITURE

1	Provide and install plastic guide (signal) posts on marking line as shown on the drawings, including all ancillary works and materials	u	58
2	Standard light reflecting road signs, II and III-type size, covered with high intensity prismatic-optical system "VIII" class adhesive films		
2.1	Warning signs	u	3
2.2	Prohibitory signs	u	5
2.3	Indication signs	u	5
2.4	Special regulation signs	u	5
2.5	Additional information signs	u	4
2.6	Distance mark (7.13)	u	12
2.7	Steel posts MP-5	u	15
2.8	Steel posts MP-6	u	12

1	2	3	4
2.9	Concrete for foundation B22.5F200W6	m ³	9.30
2.10	Install additional road signs	u	7
3	Bilingual road signs of individual design, with the frame on aluminum profile, covered with high intensity prismatic-optical system "VIII" class adhesive films		
3.1	Earthworks		
3.1.1	Excavation of pit by excavator, piling in situ	m ³	111.00
3.1.2	Excavation of pit by excavator, loading and transportation to dumpsite	m ³	130.00
3.1.3	Excavation of pit manually, strengthening of pit wal	m ³	35.00
3.1.4	Area of strengthening	m ²	240.00
3.1.5	Leveling of base manually	m ²	138.00
3.1.6	Backfilling	m ³	146.00
3.2	Crushed aggregates bed	m ³	13.80
3.3	Manufacturing and installation of metal moulds for fixing anchors and embedded details in the foundation	t	0.2190
3.4	Sign plates	m ²	141.36
3.5	Steel for structures	t	30.3390
3.6	Construction of anchors and embedded details for fixing the posts	t	2.5870
3.7	Painting of steel structure by silver, pale RAL-9006 two-component acryl polyurethane enamel on two-component, epoxy, zinc- phosphate, anticorrosive primer	m ²	525.00
3.8	Reinforced concrete for foundation B22.5F200W6	m ³	126.60
3.9	Sand-cement base h-2 cm under steel posts	m ²	2.00
4	Construction of berms from soil for standard road signs and signs of individual design	m ³	1,402.00
5	Distribution of top soil on berms thickness 15 cm	m ³	121.00
6	Provide and install safety barrier of rails (CINOL-ALPOL covered) f-3 on the main road, as specified, including support, fixing and all ancillary works and materials	l.m	5,674.00
7	Connection of steel safety guardrails with bridge barrier	l.m	2.40
8	Plastic signal beacon at the road fork	set	2
9	Impact attenuator sand barrel, 1 set – 10 units	set	2
10	Horizontal marking of carriageway (white) by road paint on methylmethacrylate base of improved night visibility with reflective glass beads size 30-600 mkm	m ²	5,116.20
11	Rumble strips. Cold plastic structure two-component yellow marking paint, thickness 6 mm with reflective glass beads, size 100-850 mkm	m ²	50.40
12	Single-sided armored concrete barrier B30F200W6 on the concrete foundation B25F200W6	l.m	10,176.80
13	Single-sided armored concrete barrier B30F200W6 without foundation	l.m	702.50
14	Reflective elements type III to be installed on concrete parapets	u	2176

TOTAL FOR BILL No. 7.

BILL No. 8. ROAD LIGHTING

	<i>DEMOLITION WORKS</i>		
1	Disconnection and dismounting of fighting fixtures from Type "A" posts (H=10.0m)	u	15
2	Disconnection and dismounting of fighting fixtures from Type "D" posts (H=9.0m)	u	2
3	Disconnection of 0.4kV cables with 4x16mm ² cross section from existing connection pannels inside bottom end of Type "A" and "D" posts	end	17
4	Dismounting of Type "A" post (H=10.0m, two-arm bracket)	u	15
5	Dismounting of Type "D" post (H=9.0m, one-arm bracket)	u	2

1	2	3	4
6	Digging pit (size 1.5x1.5x1.7m) by hand around foundations of Type "A" and "D" posts in IV category ground with piling of dug soil at place.	m ³	65.00
7	Demolition of reinforced concrete foundations (diameter D=0.55m) of Type "A" and "D" posts by use of perforator at 1.5m depth level	u	4517
	<i>INSTALLATION WORKS</i>		
1	Installation of reinforced concrete drilling piles in category V soil for Type "A2" posts	u	15
2	Installation of reinforced concrete drilling piles in category V soil for Type "D" posts	u	2
3	Digging of cable trench (depth 0.6m, width 0.4m) in category IV soil by hand, with piling of dug soil at place	m ³	173.00
4	Installation of mounting structures on bridges for Type "B" posts	u	32
5	Installation of cable hangers on bridge structures	u	980
6	Installation of 10kV copper cables (cross section 3x35mm ²), placed in Ø80mm corrugated PVC pipes, in cable trench	l.m	280.00
7	Installation of 10kV copper cables (cross section 3x35mm ²), placed in Ø100mm steel pipes	l.m	20.00
8	Installation of 0.4kV copper cables (cross section 4x16mm ²), placed in Ø40mm corrugated PVC pipes, in cable trench	l.m	775.00
9	Installation of 0.4kV copper cables (cross section 4x16mm ²), placed in Ø40mm corrugated PVC pipes, on cable hangers fixed to bridge structures	l.m	1080.00
10	Installation of 0.4kV 4x16mm ² cable inside post body	l.m	233.00
11	Installation of Type "A2" posts by flange joint	u	15
12	Installation of Type "B" posts by flange joint	u	32
13	Installation of Type "D" posts by flange joint	u	1
14	Installation of coupling sleeves on 10kV copper cables (cross section 3x35mm ²)	u	2
15	Cleaning ends of 0.4kV copper cable (cross section 4x16mm ²) wires and connection to mounting panel clamps	end	336
16	Backfilling of cable trenches and installation of warning tape after backfilling of 0.2m deep layer of soil	m ³	115.000
17	Installation of 0.23kV copper cable (cross section 3x1.5mm ²) inside post body and lighting fixture bracket	l.m	2075.000
18	Connection of ends of 0.23kV copper cable (cross section 3x1.5mm ²) to clamps on mounting panel of post and lighting fixture clamps	end	1781
19	Installation of lighting fixtures on Type "A2" and "B" post.	u	172
20	Installation of lighting fixtures on Type "A2" and "B" posts, previously dismantled	u	15
21	Installation of lighting fixture on Type "D" posts, previously dismantled	u	1
22	Installation of local grounding circuit	kompl	11
TOTAL FOR BILL No. 8.			
BILL No. 9. GREENERY			
1	Seeding of perennial plants on fill slopes, dividing strip and berms	m ²	61,659.00
TOTAL FOR BILL No. 9.			